

CLAIMS

We claim:

1. A friction mating member comprising a base member and a hard coating applied on the base member, said coating having an outer surface, wherein the hard coating has a load point displacement characteristic in which the ratio of elastic deformation to maximum indentation depth, in a load range of 1 to 50 mN, is at least 50%.

2. A friction mating member according to claim 1, wherein semispherical protrusions, having diameters in the range of 1 to 5 mm, are formed on said outer surface of said hard coating, in which the ratio of the area occupied by said protrusions to the total area of said outer surface of said hard coating is at least 3%, and the arithmetic average surface roughness R_a of said outer surface of said hard coating, excluding the semispherical protrusions, is in the range of 4 to 50 nm.

3. A friction mating member according to claim 1, wherein the arithmetic average surface roughness R_a of the base member is not greater than 0.07 mm.

4. A friction mating member according to claim 2, wherein the arithmetic average surface roughness R_a of the base member is not greater than 0.07 mm.

5. A friction mating member according to claim 1, wherein the thickness of said hard coating is in the range from 1 to 20 mm.

6. A friction mating member according to claim 2, wherein the thickness of said hard coating is in the range from 1 to 20 mm.

7. A friction mating member according to claim 3, wherein the thickness of said hard coating is in the range from 1 to 20 mm.

8. A friction mating member according to claim 4, wherein the thickness of said hard coating is in the range from 1 to 20 mm.

9. A friction mating member according to claim 1, wherein the hard coating is formed of a composite material containing tungsten carbide and amorphous carbon.

10. A friction mating member according to claim 2, wherein the hard coating is formed of a composite material containing tungsten carbide and amorphous carbon.

11. A friction mating member according to claim 3, wherein the hard coating is formed of a composite material containing tungsten carbide and amorphous carbon.

12. A friction mating member according to claim 4, wherein the hard coating is formed of a composite material containing tungsten carbide and amorphous carbon.

13. A friction mating member according to claim 5, wherein the hard coating is formed of a composite material containing tungsten carbide and amorphous carbon.

14. A friction mating member according to claim 6, wherein the hard coating is formed of a composite material containing tungsten carbide and amorphous carbon.

15. A friction mating member according to claim 7, wherein the hard coating is formed of a composite material containing tungsten carbide and amorphous carbon.

16. A friction mating member according to claim 8, wherein the hard coating is formed of a composite material containing tungsten carbide and amorphous carbon.